

Appl. No. 10/725,782
Amdt. dated July 1, 2005
Reply to Office Action of April 1, 2005

Amendments to the Specification:

Please replace the Abstract with the following:

ABSTRACT OF DISCLOSURE

Methods of forming microelectronic devices by disposing a radiation curable underfill material or adhesive material between a substrate and a microelectronic die, and exposing any the radiation curable material which bleeds-out therefrom to radiation before or immediately after disposition, thereby reducing the extent of material bleed-out.

Please replace paragraph 0004 with the following:

[0004] To enhance the reliability of the solder bumps 216 connecting the microelectronic die pads 206 and the substrate lands 212, an underfill material is used to mechanically and physically reinforce them. In a known method of underfill encapsulation shown in FIGs. 18 and 19, a low viscosity underfill material 222, such as an epoxy material, is dispensed from at least one dispensing needle 230 along at least one edge 224 (usually one or two edges) of the microelectronic die 202. The underfill material 222 is drawn between the microelectronic die 202 and the substrate 204 by capillary action (in generally the x-direction shown as arrows 240 in FIG. 18 19), and the underfill material 222 is subsequently cured (hardened) using heat, which forms the microelectronic package 200 shown in FIG. 20.

Please replace paragraph 0007 with the following:

[0007] As shown in FIG. 24, the bleed-out problem also exists when the second microelectronic die 242 of FIG. ~~19~~ 23 is directly attached by its back surface 244 to the substrate 204 rather than being stacked. An adhesive material 262 is disposed between the substrate 204 and the second microelectronic die 242. When the second microelectronic die 242 is positioned and placed on the substrate 204, the adhesive material 262 can bleed-out and cover the wirebond lands 258, which would have to be removed in order to attach the wirebonds 252 (see FIG. 22). This, again, is difficult and may reduce the reliability of the microelectronic device, as well as increasing the package cost.

Please replace paragraph 0037 with the following:

[0037] As shown in FIG. 2, a microelectronic die 112 is electronically mounted on the substrate 102. The microelectronic die 112 can include, but is not limited to, a central processing units (CPUs), chipsets, memory devices, ASICs, and the like. The illustrated method for electronically mounting the microelectronic die 112 to the substrate 102 is the attachment methods previously discussed, but is not limited thereto. Electrically conductive terminals or lands 116 on an active surface 118 of the microelectronic die 112 are attached directly to the corresponding substrate lands 104 using conductive interconnects, for example bumps or balls 114, such as leaded or lead-free reflowable solders ~~ball~~ balls, leaded or lead-free solder paste,

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metal filled epoxy, and the like.

Please replace paragraph 0051 with the following:

[0051] The radiation curable adhesive material 176 is then cured (usually heated to solidify the adhesive material), resulting in an intermediate microelectronic package 190, as shown in FIG.

15. As shown in FIG. ~~13~~ 16, at least one wirebond 196 makes electrical contact between at least one land 194 on an active surface 192 of the microelectronic die 182 and at least one wirebond land 178 on the substrate 172 to form a microelectronic package 198.